

US EPA ARCHIVE DOCUMENT

Enbridge Energy, Limited Partnership
333 S. Kalamazoo Avenue
Marshall, Michigan 49068



November 15, 2012

Mr. Ralph Dollhopf
Federal On-Scene Coordinator and Incident Commander
U.S. Environmental Protection Agency
801 Garfield Avenue, #229
Traverse City, MI 49686

Re: In the Matter of Enbridge Energy Partners, L.P., *et al*,
Docket No. CWA 1321-5-10-001

Dear Mr. Dollhopf:

Pursuant to the United States Environmental Protection Agency's (U.S. EPA) letter dated November 13, 2012, Enbridge Energy, Limited Partnership (Enbridge) has incorporated the modifications as directed in the October 12, 2012 correspondence to approve the 2012 Morrow Lake Delta and Morrow Lake Monitoring and Management Work Plan (Plan). The revised Plan dated November 15, 2012 is attached for your records.

Enbridge did not agree with several points contained in the U.S. EPA's October 12, 2012 approval with modifications letter. The following is a summary of those concerns along with meeting notes.

1. No Issues
2. Section 1.2 (Purpose and Objective)
 - a. Please replace "potential" with "further" in the first sentence.

October 26th Meeting: It was agreed to eliminate the first sentence of the paragraph.

- b. Please replace the second sentence with the following: "The objectives of the work plan are to conduct ongoing monitoring of submerged oil movement into and within Morrow Lake and to routinely evaluate the effectiveness of the E 4.0 Containment System in mitigating further submerged oil migration into Morrow Lake."

October 26th Meeting: It was agreed to leave the language as written on August 28, 2012 which is provided below.

"The objectives of the work plan are to monitor submerged oil movement and evaluate the effectiveness of the E 4.0 Containment System. Activities and monitoring tasks described herein will be performed within Morrow Lake Delta and Morrow Lake."

3. Section 2.1 (2012 Poling Activities) - Please add "or as directed by the U.S. EPA" to the following sentence "Enbridge will conduct poling activities as part of the scope of work in Morrow Lake Delta and Morrow Lake at the fixed locations shown in Figure 1."

October 26th Meeting: It was agreed to replace the language in question with the following to be included at the end of Section 1.0 Introduction:

"If revisions to this work plan are to be made due to changing conditions in Morrow Lake Delta and Morrow Lake, both the U.S. EPA and Enbridge will agree to discuss potential procedural modifications to this work plan. Any procedural modifications agreed upon by both parties, and in accordance with Enbridge Safety, will be performed once an updated work plan is approved."

4. Section 2.1.1 (Procedures)
 - a. No Issues
 - b. Please add the following statement to the end of Section 2.1.1: "The objectives of this plan are to conduct ongoing and routine monitoring for submerged oil migration and effectiveness of the E4.0 Containment System. The 60 degree Fahrenheit minimum water and sediment temperature requirement for submerged oil reassessment activities will not be required for the poling activities conducted under this plan. While water and sediment temperatures will continue to be collected during poling activities conducted pursuant to this plan, the poling data will be utilized strictly as an ongoing monitoring tool and will not be considered reassessment data."

October 26th Meeting: It was agreed to modify this paragraph as follows:
"Water and sediment temperatures of 60 degrees Fahrenheit (°F) or above during submerged oil reassessment activities will not be required for the poling activities conducted under this work plan. While water and sediment temperatures will continue to be collected during poling activities conducted pursuant to this plan, the poling data will be utilized strictly as an ongoing monitoring tool and will not be considered reassessment data. Once water and sediment temperatures reach 45 °F or below, poling and temperature collection will cease."

5. Section 2.2.1 (E4.0 Containment System Monitoring)
 - a. Please add a detailed description of procedures to monitor the elevation of sediment both on the upstream and downstream sides of the E4.0 Containment System half curtains. The procedure shall include a detailed description of how changes in sediment elevation will be monitored over time for potential sediment accumulation and/or scouring.

October 26th Meeting: It was agreed that additional discussions were necessary to further evaluate an effective method for bathymetry.

Since this meeting, two Focus Group meetings were held on November 1, 2012 and November 6, 2012 between Enbridge and U.S. EPA representatives. The agreed upon procedure is included within the attached document in Section 2.2.1 paragraph 2. Therefore, additional time and further discussions were needed to complete the Plan.

- b. No Issues
- c. Please add the following sentences: "Prior to making any changes, including but not limited to configuration to the E4.0 Containment System, Enbridge will submit proposed changes to the U.S. EPA. Further, Enbridge shall not make any changes to the E4.0 Containment System without the prior approval from the U.S. EPA. Decommissioning of and/or recovery/removal of accumulated sediment from the E4.0 Containment System will be proposed by Enbridge in separate work plan(s), and will not be performed until approved by the U.S. EPA."

October 26th Meeting: Enbridge did not agree with this change at that time. However, after the November 15th meeting, Enbridge is in agreement with this language.

All of these concerns were addressed in subsequent meetings held on October 26, 2012, November 1, 2012, November 6, 2012 and November 15, 2012 between Enbridge and the U.S. EPA. Enbridge will be submitting a revised plan with the above noted changes for approval by November 20, 2012.

Please contact myself or Enbridge's Incident Commander John Sobojinski if you have any questions.

Sincerely,

ENBRIDGE ENERGY, LIMITED
PARTNERSHIP
By Enbridge Pipelines (Lakehead) L.L.C.
It's General Partner



Richard Adams
Vice President, U.S. Field Operations

CC: John Sobojinski, Enbridge
Michelle DeLong, MDEQ
Mark DuCharme, MDEQ

**Enbridge Line 6B MP 608
Marshall, MI Pipeline Release**

**2012 Morrow Lake Delta and Morrow Lake Monitoring
and Management Work Plan**

Prepared for the United States Environmental Protection Agency

**Enbridge Energy, Limited Partnership
Originally Submitted: August 28, 2012
Approved: November 15, 2012**

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- Figure 3** **E 4.0 Boom and Curtain Bathymetry September 2012**

ATTACHMENT

- Attachment A** **E 4.0 Curtain Monitoring Log**

LIST OF ACRONYMS

CWA	Clean Water Act
Enbridge	Enbridge Energy, Limited Partnership
GPS	Global Positioning System
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
MP	Mile Post
U.S. EPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This work plan has been developed upon written request on August 8, 2012 by the United States Environmental Protection Agency (U.S. EPA). The plan contains elements presented in the *Addendum to the Response Plan for Downstream Impacted Areas, August 2, 2010 (Revised August 17, 2010 per U.S. EPA August 17, 2010 letter)*, *Supplement to Source Area Response Plan*, and *Supplement to Response Plan for Downstream Impacted Areas, Referred to as Operations and Maintenance Work Plan Commonly referred to as "Consolidated Work Plan from Fall 2011 through Fall 2012"* approved by the U.S. EPA on December 21, 2011 (Enbridge, 2011) for the Enbridge Energy, Limited Partnership (Enbridge) Line 6B Mile Post (MP) 608 oil release which occurred near Marshall, Michigan on July 26, 2010.

1.1 Regulatory Framework

As required by the U.S. EPA Removal Administrative Order Under Section 311(c) of the Clean Water Act (CWA), issued on July 27, 2010 to Enbridge Energy Partners, L.P., Docket Number: CWA 1321-5-10-001, all oil assessment, containment, and recovery activities will be performed in accordance with Section 311(c) of the CWA, 33 U.S.C. § 1321(c), as amended by the Oil Pollution Act of 1990 and 33 U.S.C. §2701 et seq. Paragraph 18 of the Removal Administrative Order and Paragraph 6 of the Supplement require, among other things, that Enbridge perform the following actions in response to the Line 6B release:

- Assess all oil-impacted areas and media,
- Contain all oil,
- Remediate/recover all submerged oil,
- Recover all oil sheen,
- Remediate all oil-containing soils,
- Remediate all oil-containing sediments, and
- Perform operations and maintenance activities as directed by the U.S. EPA.

In addition to the requirements cited above, all activities will be performed in accordance with all federal, state, and local regulations. This Morrow Lake Delta and Morrow Lake Monitoring and Management Plan does not address recovery of accumulated submerged oil. Submerged oil recovery will be addressed separately.

1.2 Purpose and Objective

The activities in this work plan are designed around monitoring and managing the further movement of submerged oil into and within Morrow Lake Delta and Morrow Lake related to the Line 6B release. The objectives of the work plan are to conduct ongoing monitoring of submerged oil movement into and within Morrow Lake and to routinely evaluate the effectiveness of the E 4.0 Containment System in mitigating further submerged oil migration into Morrow Lake. Activities and monitoring tasks described herein will be performed within Morrow Lake Delta and Morrow Lake.

2.0 2012 MORROW LAKE DELTA AND MORROW LAKE MONITORING

2.1 2012 Poling Activities

Enbridge will conduct poling activities as part of the scope of work in Morrow Lake Delta and Morrow Lake, or as directed by the U.S. EPA, at the fixed locations shown in *Figure 1*. Monitoring frequency will be once per month or after event driven river flow rates exceed 800 cubic feet per second at the Battle Creek gaging station (Station ID:04105500). The results of poling activities within Morrow Lake Delta and Morrow Lake will be used to assess the effectiveness of E 4.0 Containment System and the potential migration and distribution of additional submerged oil from Morrow Lake Delta into Morrow Lake.

2.1.1 Procedures

Poling will be performed using procedures developed and utilized during the 2012 Spring Submerged Oil Reassessment. The following poling data will be collected in accordance with the *Sediment Poling Standard Operating Procedure* submitted to U.S. EPA on May 11, 2012 (Enbridge, 2012):

- Measure water depth,
- Measure sediment, just above sediment, and surface water temperatures,
- Measure the soft sediment depth (first and second push techniques),
- Determine bed characteristics,
- Determine the presence/absence of submerged oil, and
- Collect global positioning system (GPS) coordinates.

A determination of the relative amount of submerged oil at each poling location will be made by using a pole with an 8-inch diameter disk to agitate the soft sediment. After agitation, the amount of oil/sheen observed at the water surface will be characterized using the 2012 Spring Submerged

Oil Reassessment Flow Chart shown in *Figure 2*. If “moderate” or “heavy” indications of submerged oil are observed, the area may be delineated with additional poling.

A GPS unit will be used to document the coordinates for each poling location using a differential GPS unit with sub-meter accuracy. The horizontal coordinate system will be the Michigan State Plane Coordinate System, South zone, referenced to the North American Datum 83, in international feet. The objectives of this plan are to conduct ongoing and routine monitoring for submerged oil migration and effectiveness of the E4.0 Containment System. The 60 degree Fahrenheit minimum water and sediment temperature requirement for submerged oil reassessment activities will not be required for the poling activities conducted under this plan. While water and sediment temperatures will continue to be collected during poling activities conducted pursuant to this plan, the poling data will be utilized strictly as an ongoing monitoring tool and will not be considered reassessment data.

2.2 E 4.0 Containment System

The E 4.0 Containment System consists of six segments (Locations A through F) in a gate style surface containment boom along with X-TEX curtain extending from the surface boom to the bottom of the water column leaving 50% of the water column open to flow. The gate style boom allows for navigation around the boom between Morrow Lake Delta and Morrow Lake. The intended purpose of the E 4.0 Containment System is to reduce downstream migration of potential submerged and floating crude oil. The location of the E 4.0 Containment System is presented in *Figure 1*. Enbridge has secured a Michigan Department of Environmental Quality Permit (# 12-39-0027-P) for the containment system.

2.2.1 E 4.0 Containment System Monitoring

The following monitoring activities will be performed on a monthly basis to monitor the effectiveness of the E 4.0 Containment System:

- Poling, and
- Turbidity measurements.

Poling data and turbidity measurements will be collected in Morrow Lake Delta along the E 4.0 Containment System where sediment curtain is present. Poling will be performed approximately 5 feet upstream of the sediment curtain and 10 to 20 feet downstream of the sediment curtain at approximate intervals of 25 feet between locations. Turbidity measurements will be collected

approximately 50 feet upstream of the sediment curtain and 75 feet downstream of the sediment curtain at approximate intervals of every 25 to 50 feet.

Bathymetry measurements will also be collected along the E4.0 Containment System where sediment curtain is still installed. The measurements will be collected at predetermined locations that are shown in *Figure 3*. Bathymetry measurements will be collected along transects parallel to flow, at four locations on the upstream side and four locations on the downstream side of the E 4.0 Containment System half curtains. The predetermined locations are collected at 5-foot intervals and spaced approximately 50 feet between locations along the boom with attached half curtain and collected as follows:

- A Total Station device (i.e., Trimble S6 Robotic Total Station, 1 arc second Robotic Total Station, or equivalent) with 2 millimeter accuracy will be used to collect sediment bed elevations at the predetermined locations.
- A profile will be generated for each transect using the total station data collected.

The following monitoring activities will be performed on a daily basis to maintain the E 4.0 Containment System:

- Measure and maintain the boom and curtain,
- Measure water depth,
- Monitor the inclination of the anchor system,
- Monitor the flow rates from United States Geological Survey Battle Creek gaging station 04105500, and
- Video the sediment curtain and mud-line.

Monitoring and maintenance activities will be recorded on daily data log sheets which is included as *Attachment A*. Enbridge will thoroughly evaluate, present, and discuss E 4.0 Containment System daily monitoring results with the U.S. EPA at least weekly, and more frequently if changed conditions warrant more frequent evaluation/presentation of results.

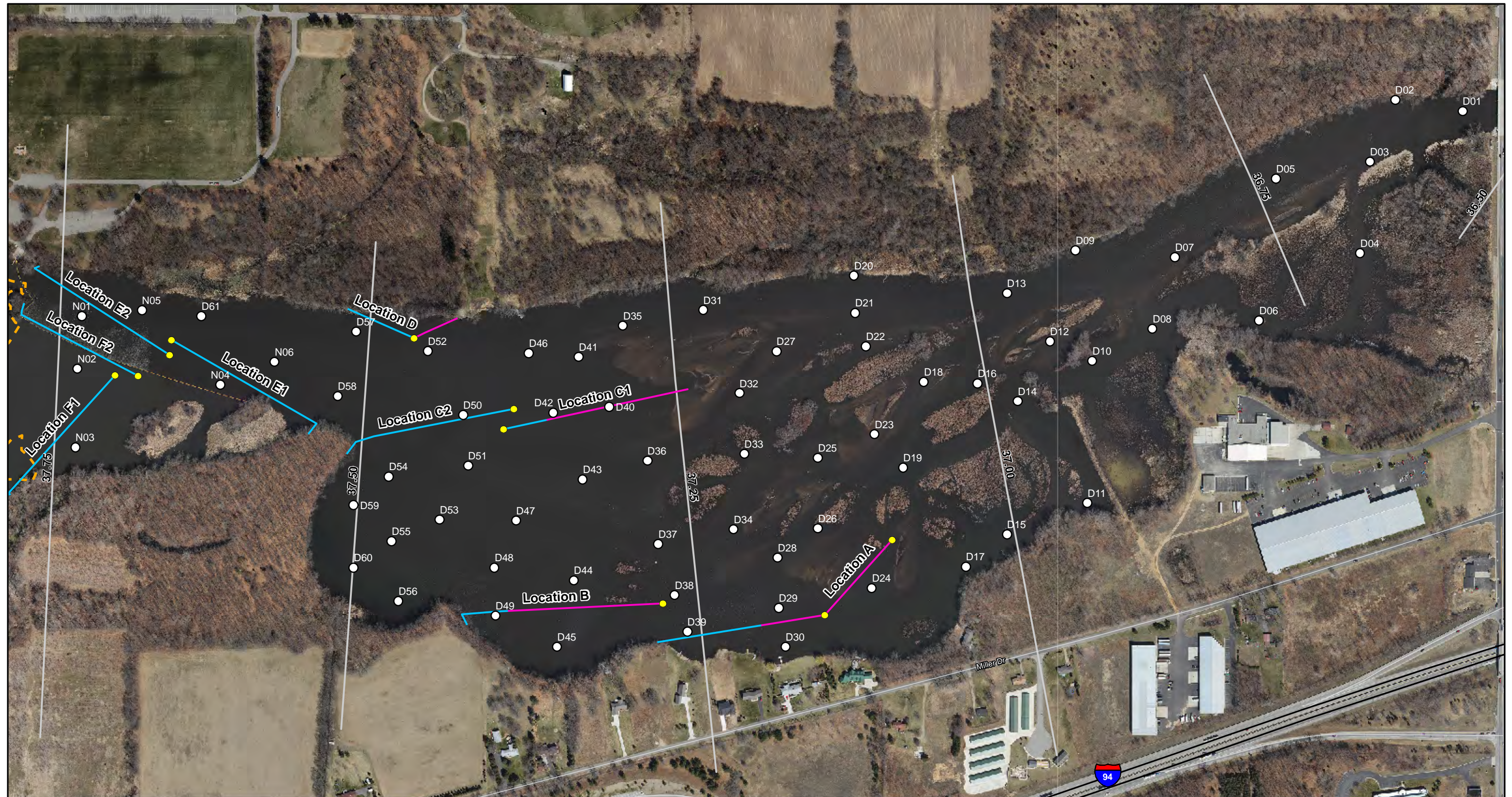
Prior to making any changes, including but not limited to configuration to the E4.0 Containment System, Enbridge will submit proposed changes to the U.S. EPA. Further, Enbridge shall not make any changes to the E4.0 Containment System without the prior approval from the U.S. EPA. Decommissioning of and/or recovery/removal of accumulated sediment from the E4.0 Containment



System will be proposed by Enbridge in separate work plan(s), and will not be performed until approved by the U.S. EPA.

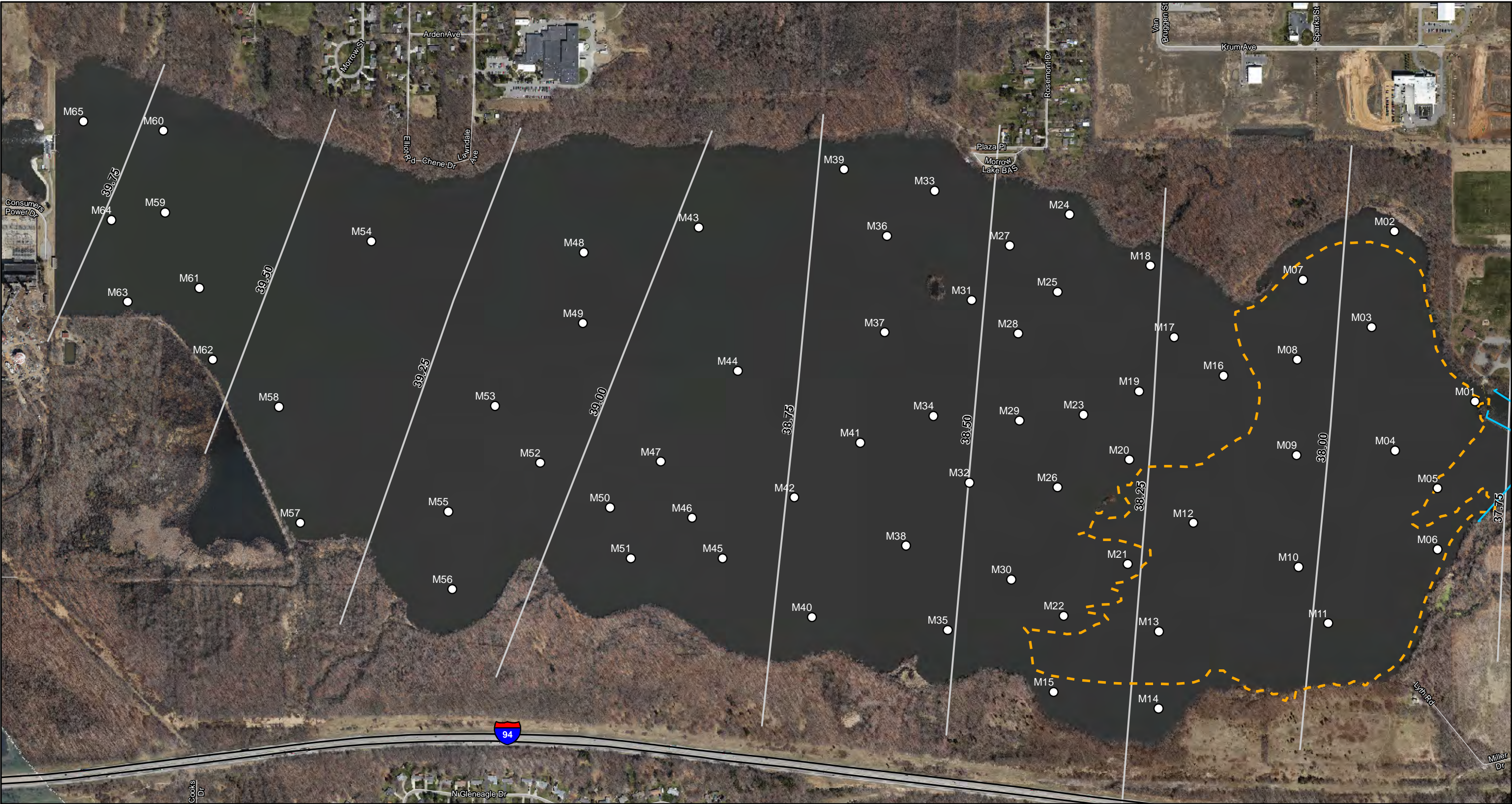
3.0 REFERENCES

- Enbridge, 2011. Enbridge Line 6B Pipeline Release, Marshall, Michigan; *Addendum to the Response Plan for Downstream Impacted Areas, August 2, 2010 (Revised August 17, 2010 per U.S. EPA August 17, 2010 letter), Supplement to Source Area Response Plan, and Supplement to Response Plan for Downstream Impacted Areas, Referred to as Operations and Maintenance Work Plan commonly referred to as Consolidated Work Plan from Fall 2011 through Fall 2012*. December 21, 2011.
- Enbridge, 2012. Enbridge Line 6B Pipeline Release, Marshall, Michigan; *Sediment Poling Standard Operating Procedure*. May 11, 2012

Figures



	Map Location	Legend ○ Poling Monitoring Location D - Morrow Lake Delta M - Morrow Lake N - Morrow Lake Neck E 4.0 Containment System — X-TEX Sediment Curtain — No Curtain ● Anchor Point — Approximate Sediment Fan Area — Quarter Mile Grid Segment	 0 200 400 800 Scale in Feet	FIGURE 1 2012 MORROW LAKE DELTA AND MORROW LAKE POLING LOCATIONS AND E 4.0 CONTAINMENT SYSTEM SHEET 1 OF 2 ENBRIDGE LINE 6B MP 608 MARSHALL, MI PIPELINE RELEASE ENBRIDGE ENERGY, LIMITED PARTNERSHIP
	Drawn: NS 8/28/2012			
	Approved: EE 8/28/2012			
	Project #: 60246209			





	Map Location	Legend ○ Poling Monitoring Location D - Morrow Lake Delta M - Morrow Lake N - Morrow Lake Neck E 4.0 Containment System — X-TEX Sediment Curtain — No Curtain ● Anchor Point — Approximate Sediment Fan Area — Quarter Mile Grid Segment	 0 350 700 1,400 Scale in Feet
	Drawn: NS 8/28/2012		
	Approved: EE 8/28/2012		
	Project #: 60246209		

FIGURE 1
2012 MORROW LAKE DELTA AND MORROW LAKE
POLING LOCATIONS AND E 4.0 CONTAINMENT SYSTEM
SHEET 2 OF 2

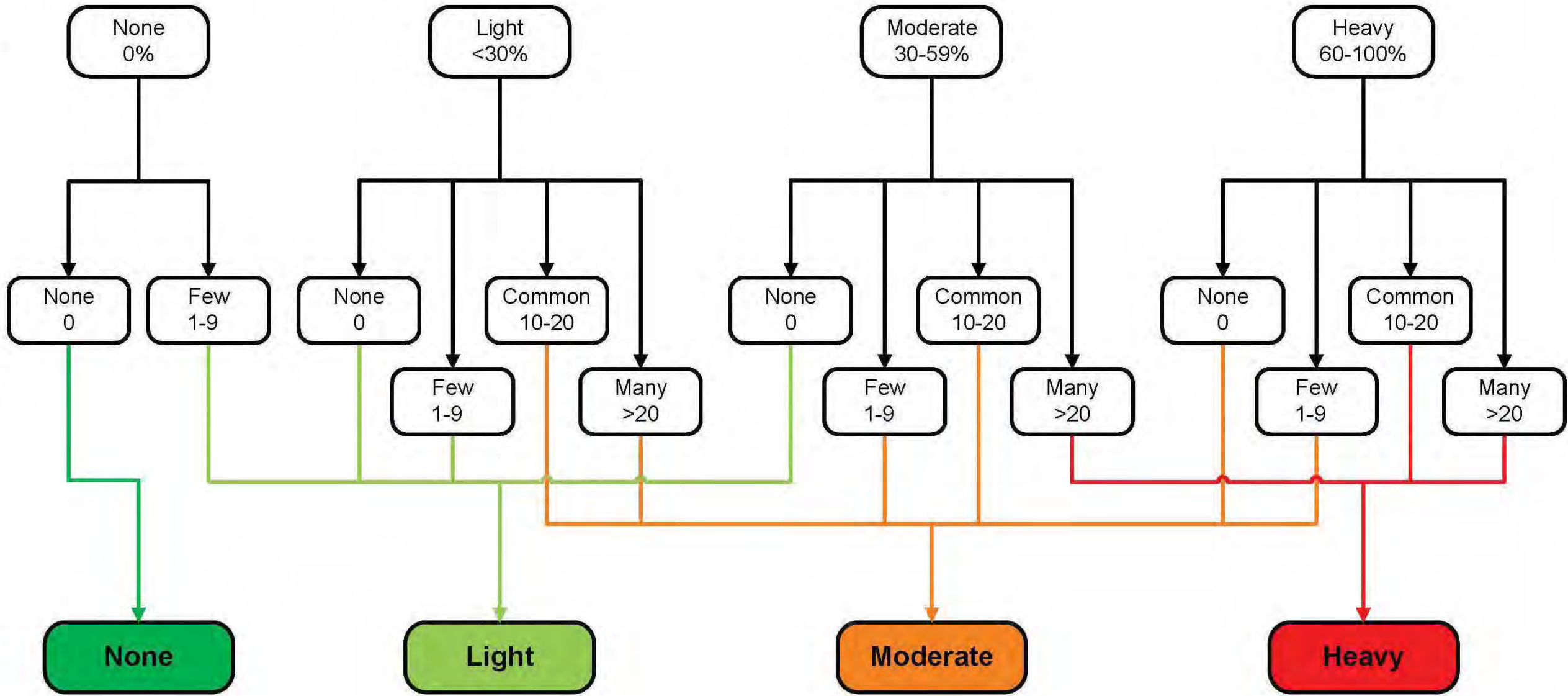
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Submerged Oil Field Observation Flowchart

Percent Sheen Coverage¹

Number of Globules²

Submerged Oil Category



Notes:
 1. Percent coverage per square yard
 2. Number of globules per square yard



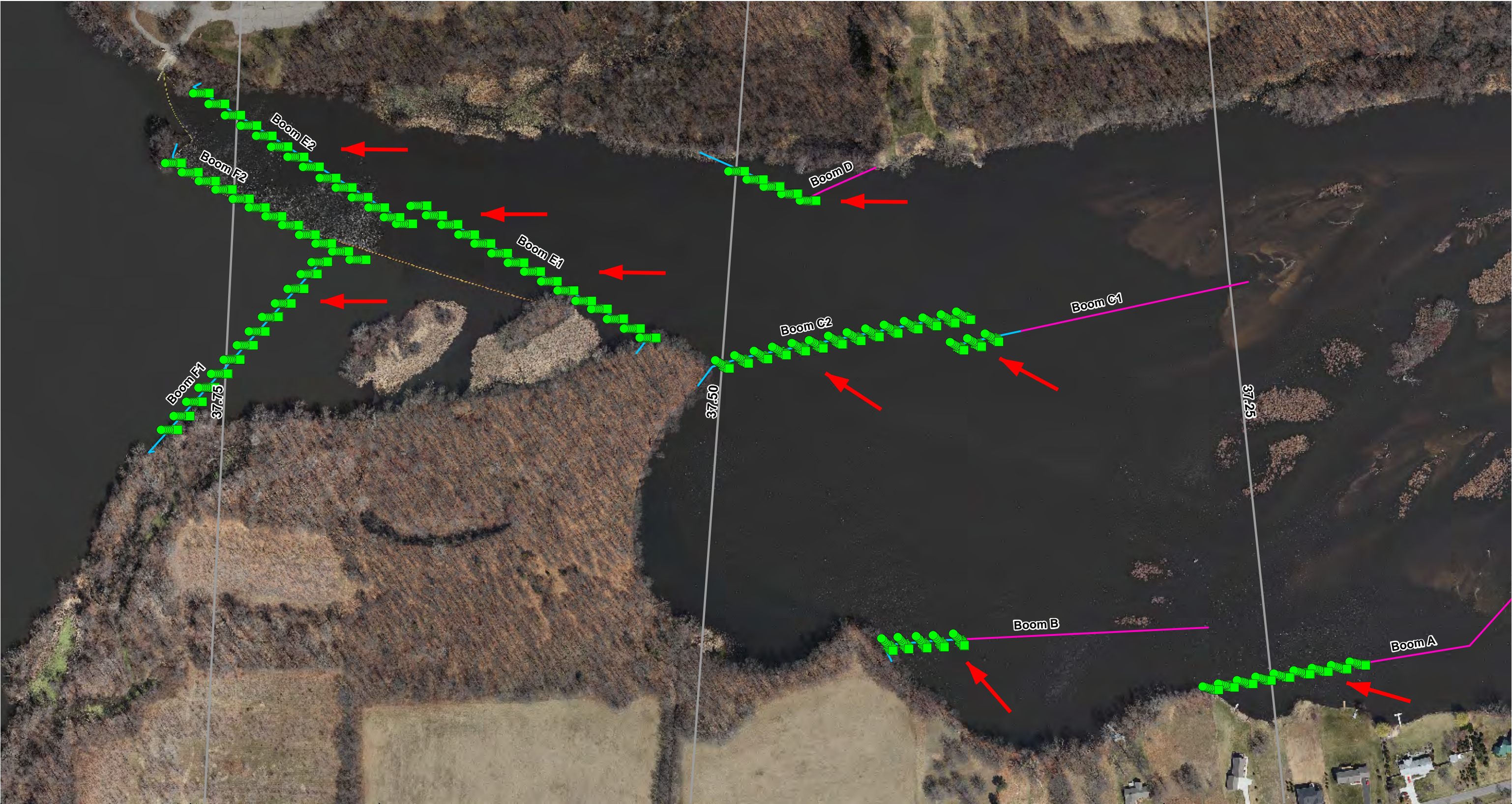
Drawn: CM 4/26/2012
 Approved: DBR 4/26/2012
 Project #: 106-4186

1. Percent sheen coverage per square yard.
 2. Number of globules per square yard.
 3. Globules are balls of oil larger than 4 millimeters.
 Flecks are particles of oil less than 4 millimeters.
 20 flecks are equal to 1 globule.

% = Percent

FIGURE 2
 2012 SPRING SUBMERGED OIL REASSESSMENT
 FLOW CHART

ENBRIDGE LINE 6B MP 608
 MARSHALL, MI PIPELINE RELEASE
 ENBRIDGE ENERGY, LIMITED PARTNERSHIP



ENBRIDGE

Drawn: NS 11/15/2012

Approved: EE 11/15/2012

Project #: 60246209

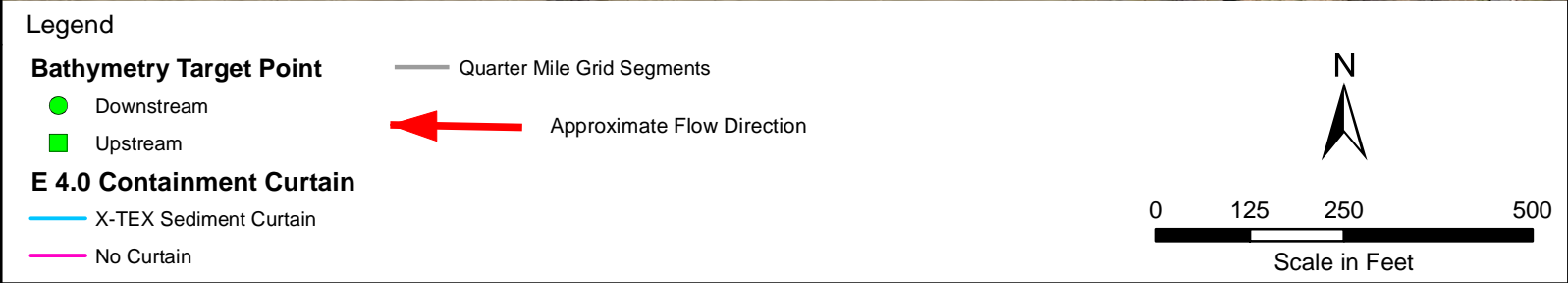
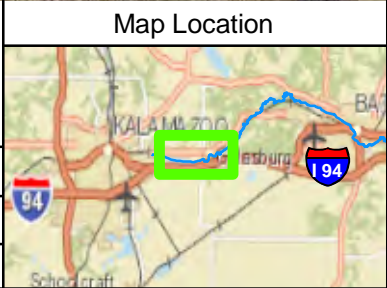
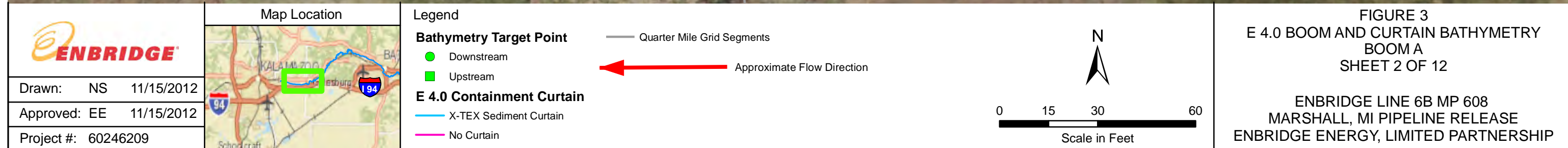
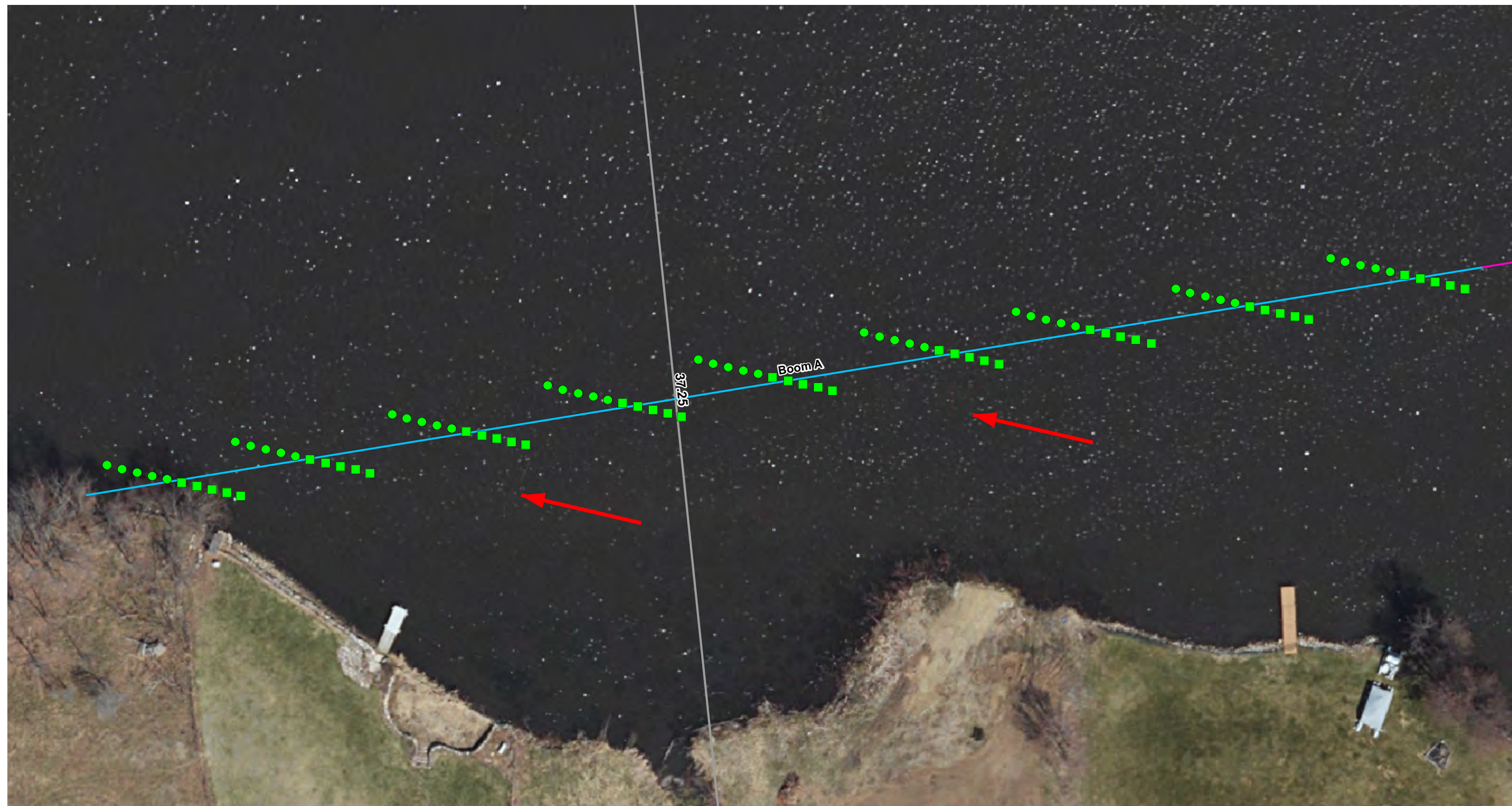
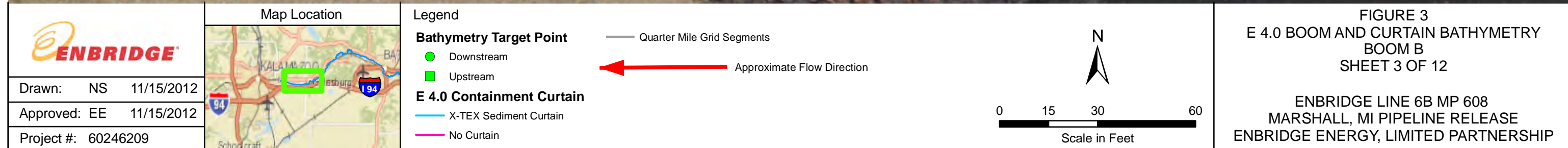
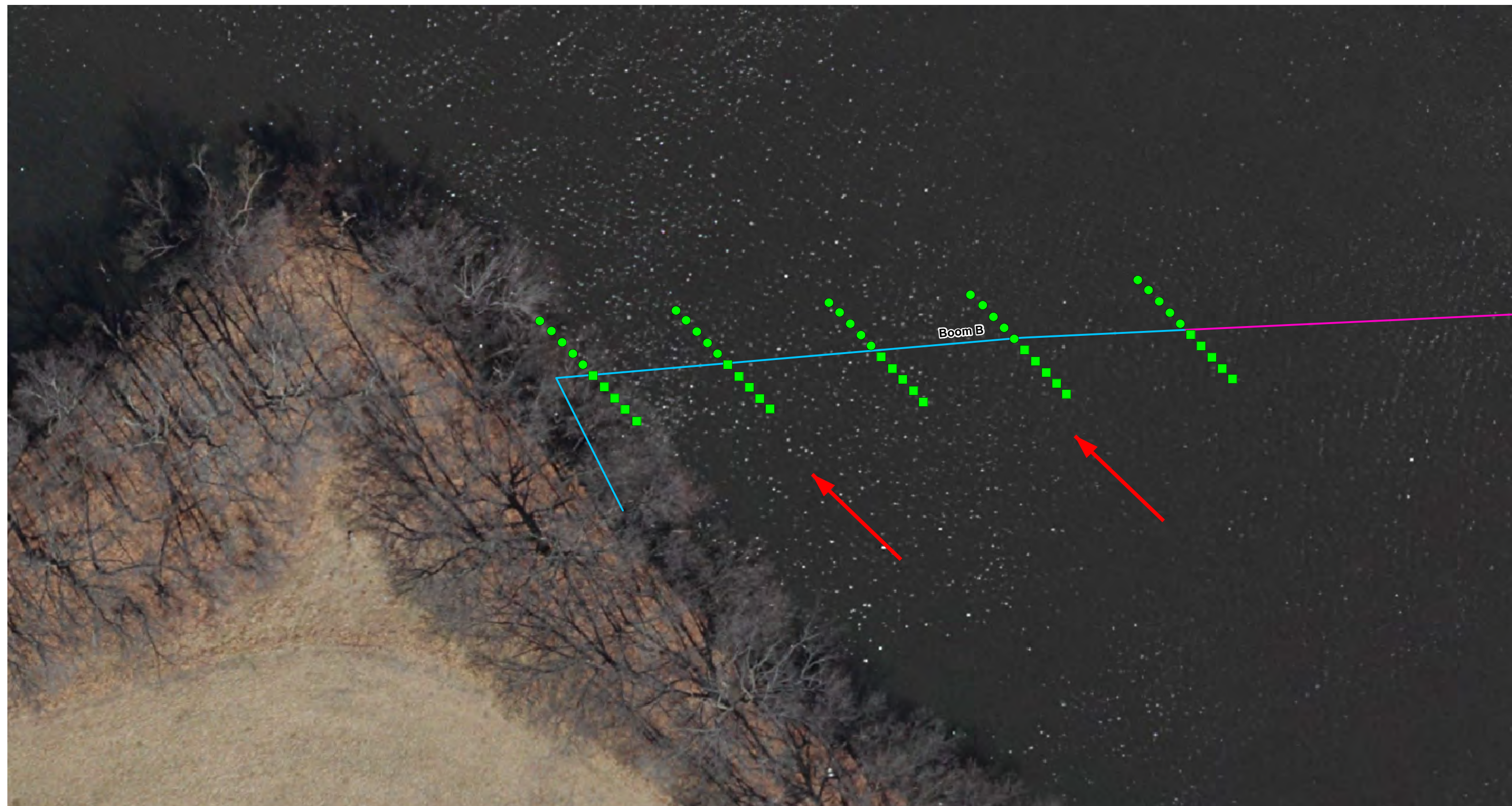
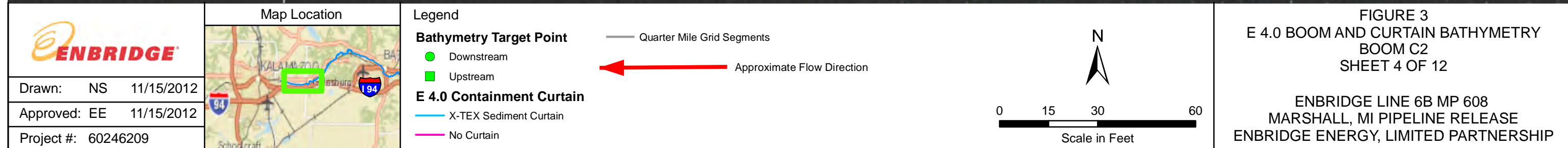
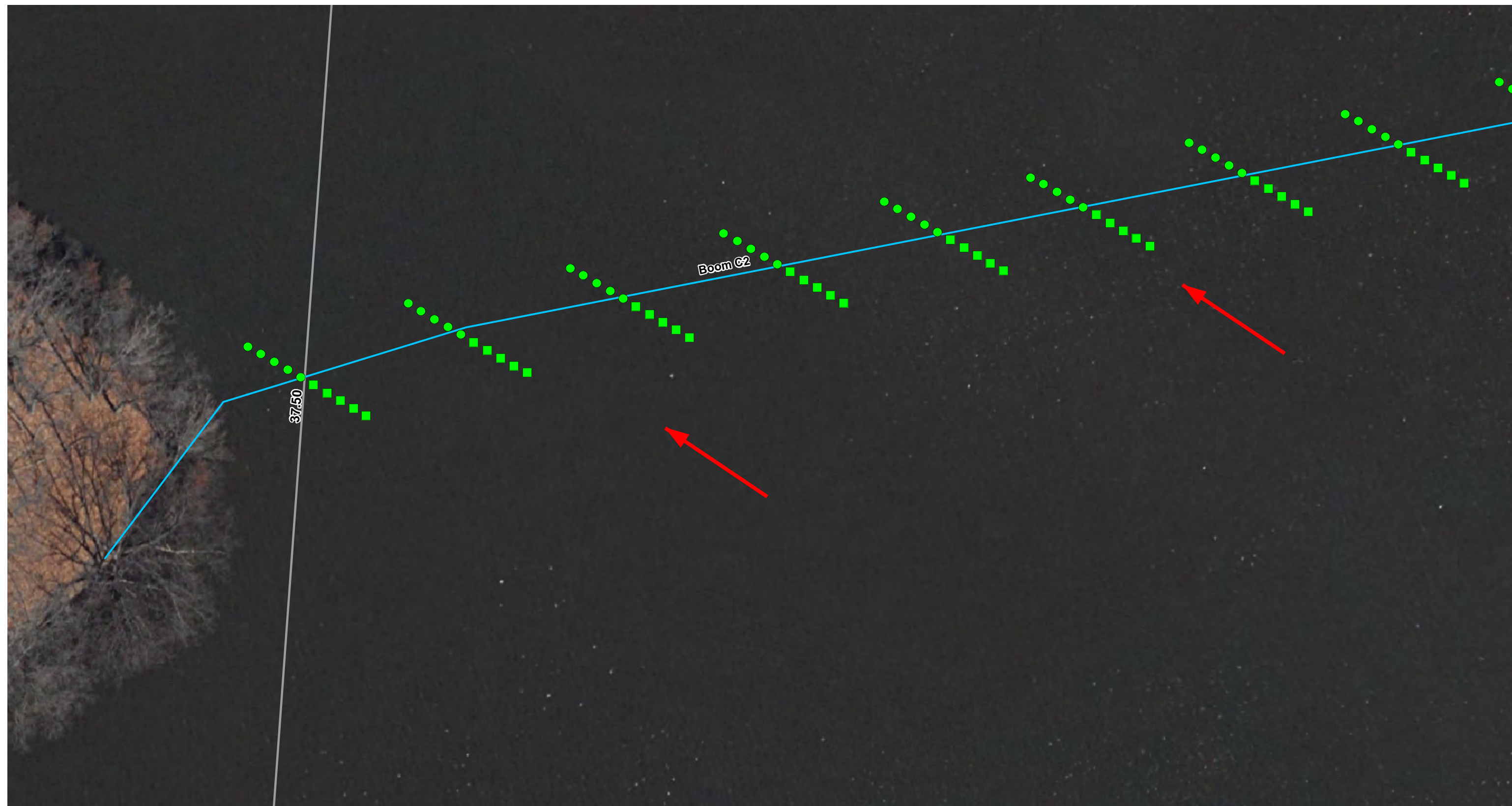


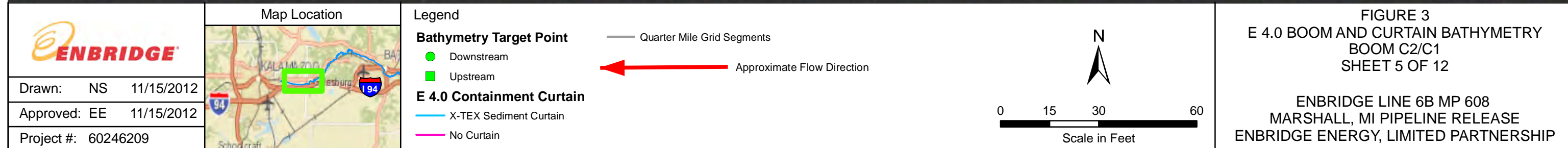
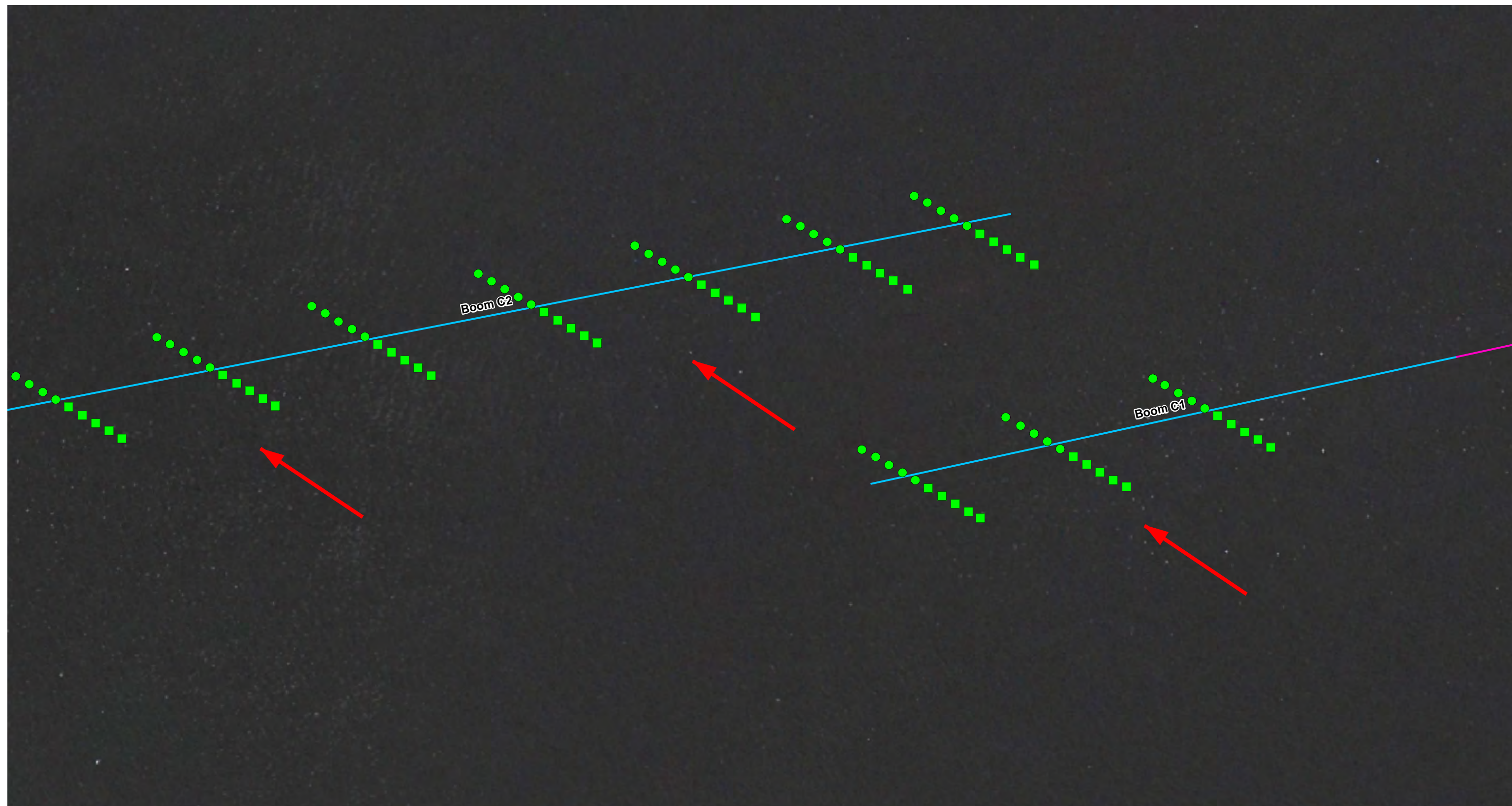
FIGURE 3
E 4.0 BOOM AND CURTAIN BATHYMETRY
OVERVIEW
SHEET 1 OF 12

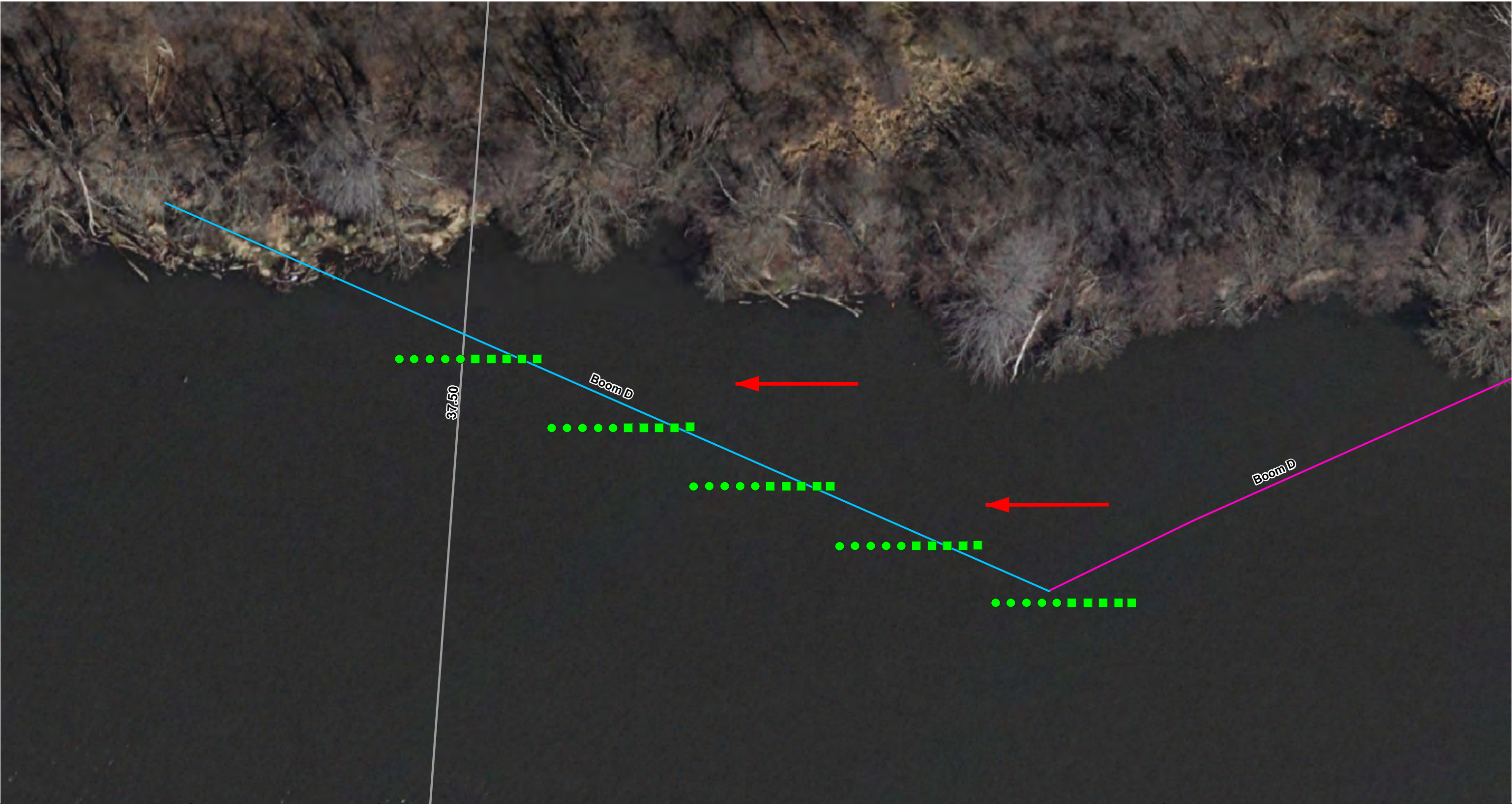
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP



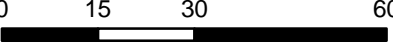









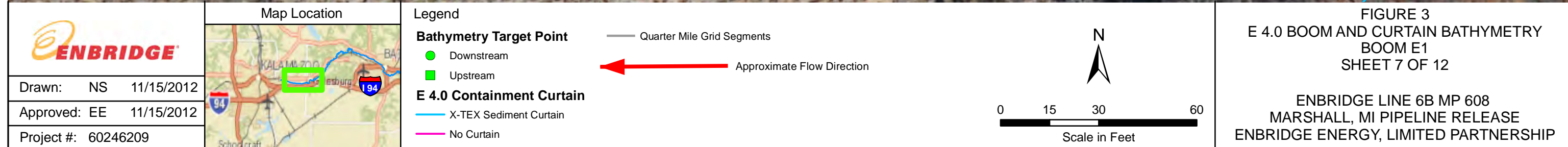


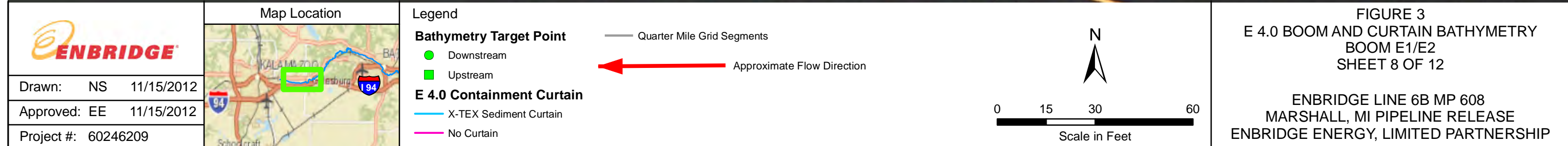


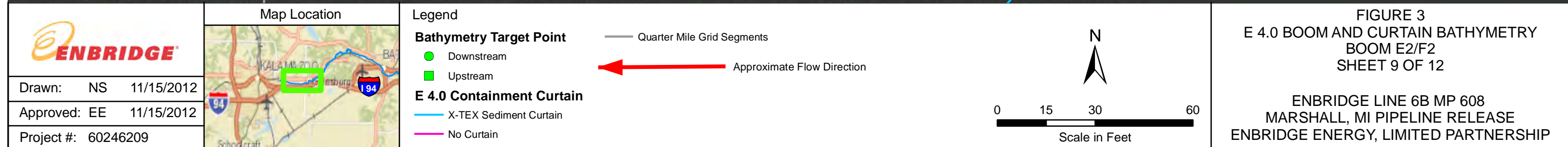
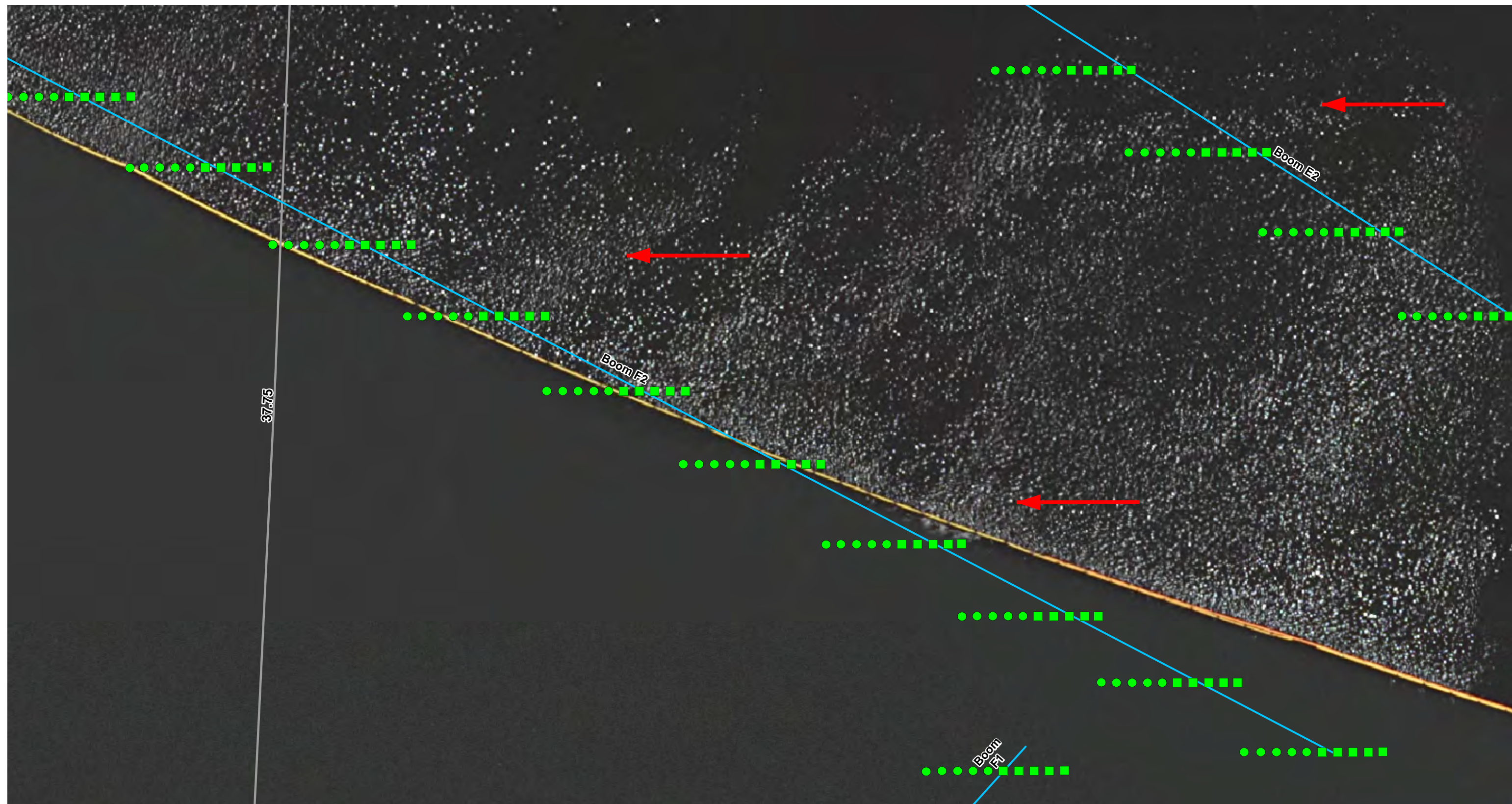


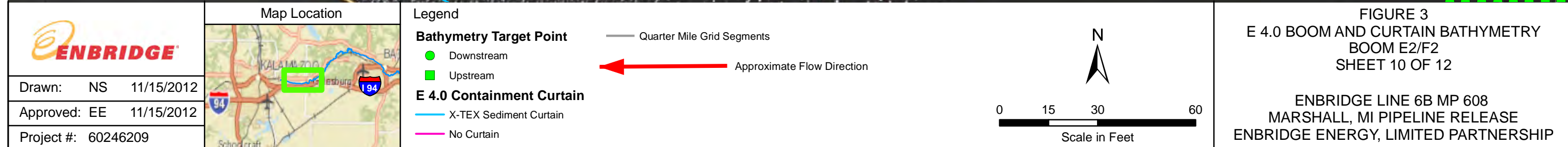


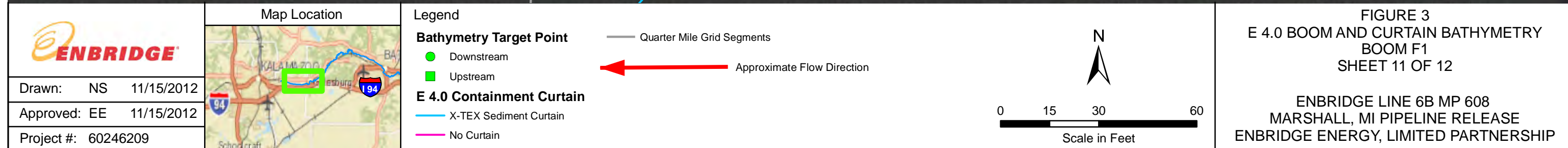
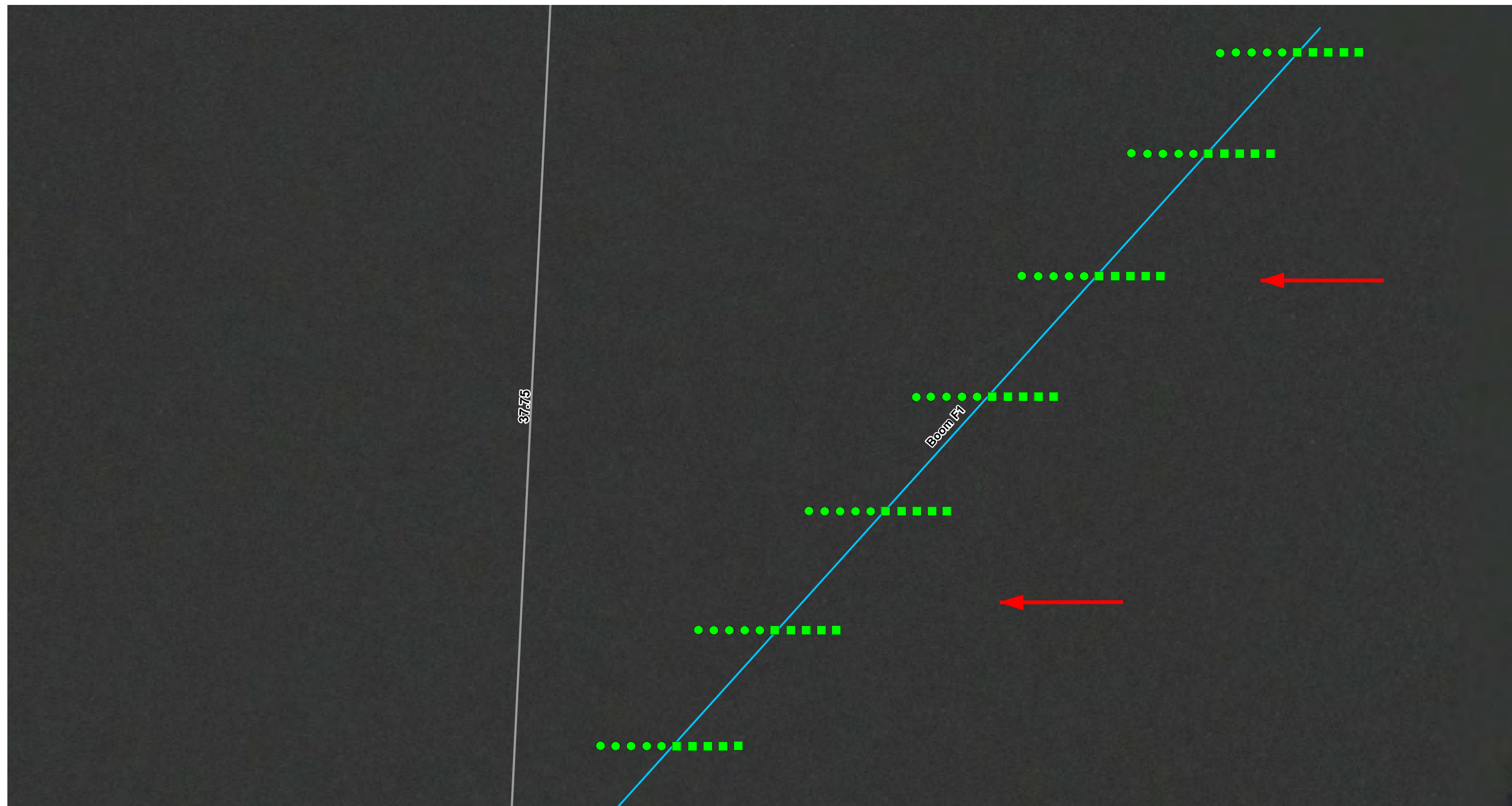
	Map Location		Legend		  Scale in Feet	FIGURE 3 E 4.0 BOOM AND CURTAIN BATHYMETRY BOOM D SHEET 6 OF 12 ENBRIDGE LINE 6B MP 608 MARSHALL, MI PIPELINE RELEASE ENBRIDGE ENERGY, LIMITED PARTNERSHIP	
			Bathymetry Target Point	 Quarter Mile Grid Segments			 Approximate Flow Direction
			 Downstream				
			 Upstream				
		E 4.0 Containment Curtain					
		 X-TEX Sediment Curtain					
		 No Curtain					
Drawn: NS 11/15/2012							
Approved: EE 11/15/2012							
Project #: 60246209							

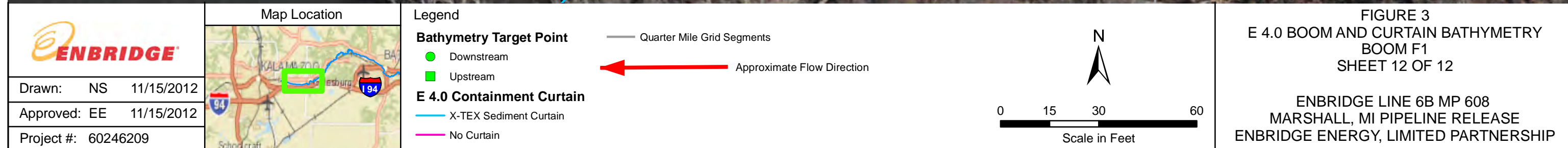












Attachment A
E 4.0 Curtain Monitoring Log

Date: _____

General Comments: * Note any deficiencies or repairs completed.